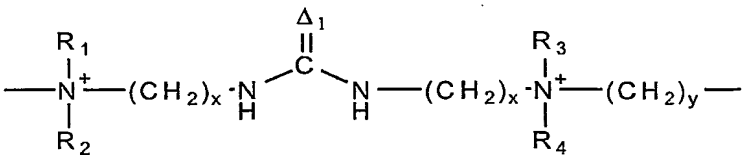
Having described the invention, the following is claimed:

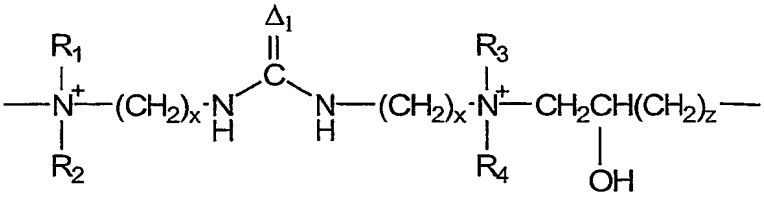
1. A zinc or zinc alloy electroplating bath comprising:

zinc ions and a brightening agent, the brightening agent comprising at least one polyamine or a mixture of polyamines, the at least one polyamine or mixture of polyamines including a first repeating unit that has the general formula:

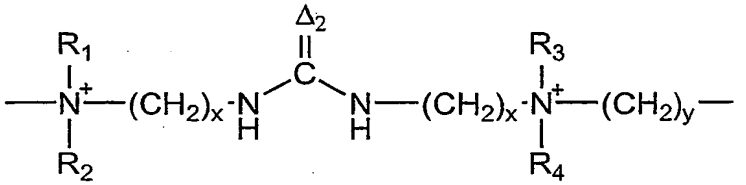


(1)

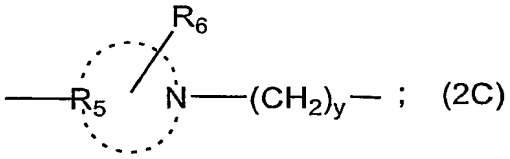
and a second repeating unit selected from the group consisting of



(2A)



(2B)



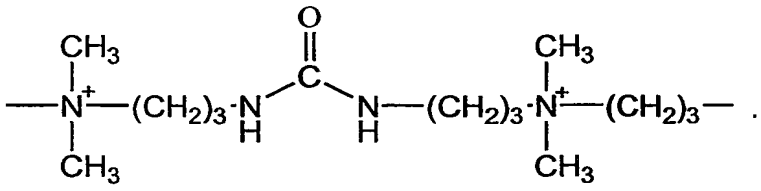
(2C)

and combinations thereof;

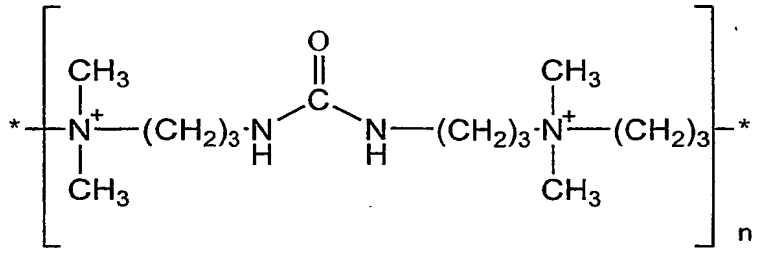
where Δ_1 is O, N, or S; Δ_2 is O, N, or S, and $\Delta_2 \neq \Delta_1$; x is an integer from 2 to 6; y is an integer from 1 to 6; z is an integer from 1 to 6; R_1, R_2, R_3, and R_4, which is the same or different, is methyl, ethyl, isopropyl, n-propyl, hydroxyethyl, or

$-CH_2CH_2(OCH_2CH_2)_mOH$; m is a number between 0-6; R_5 represents a group of atoms necessary to complete a heterocyclic compound having a five or six membered ring containing at least two nitrogen atoms; and R_6 is nothing or an alkyl group.

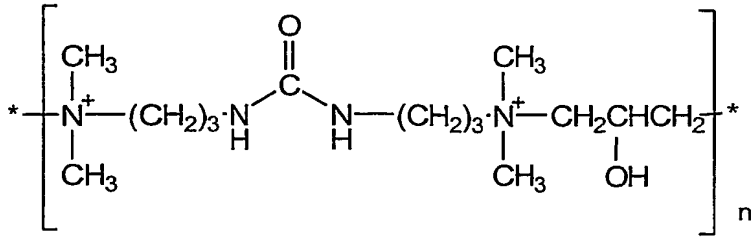
2. The zinc or zinc alloy electroplating bath of claim 1, the first repeating unit having the following formula:



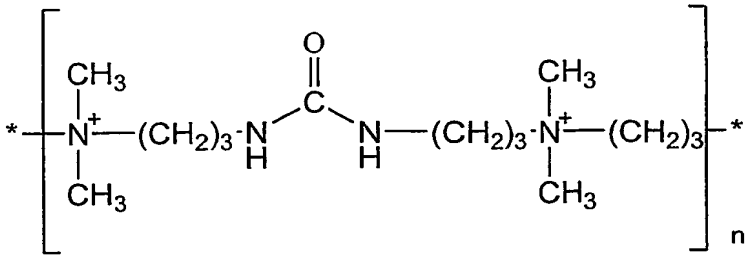
3. The zinc or zinc alloy plating bath of claim 1, the brightening agent comprising a mixture of polyamines, the mixture of polyamines including a first polyamine of the general formula:



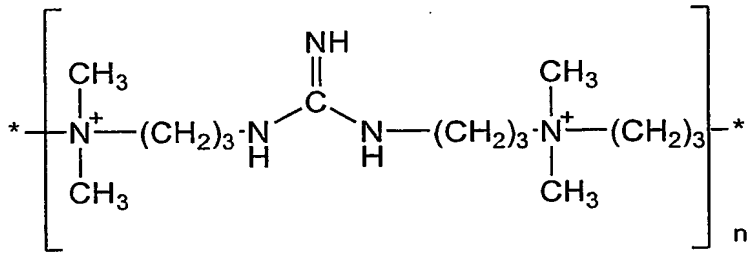
and a second polyamine of the general formula:



4. The zinc or zinc alloy plating bath of claim 1, the brightening agent comprising a mixture of polyamines, the mixture of polyamines including a first polyamine of the general formula:

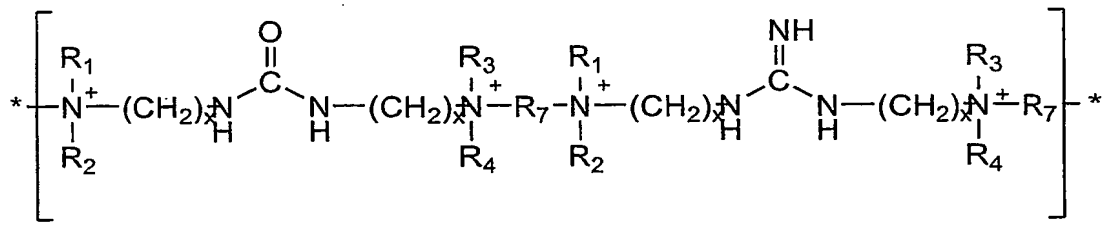


and a second polyamine of the general formula:



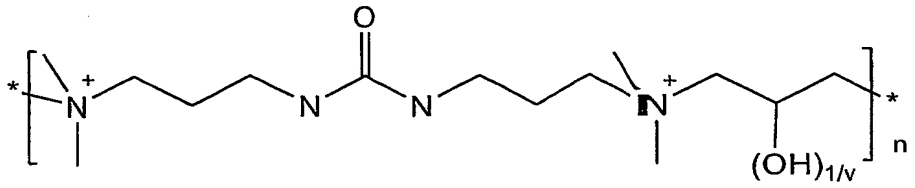
5. The zinc or zinc alloy electroplating bath of claim 1, the first repeating unit and the second repeating unit being in the same polymer chain.

6. The zinc or zinc alloy electroplating bath of claim 1, the polyamine including a repeating unit having the following general formula:



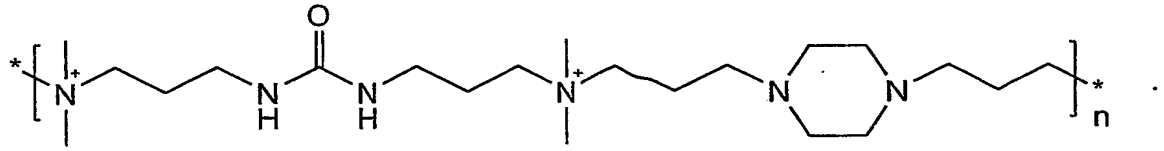
where R_7 is an alkylene group.

7. The zinc or zinc alloy electroplating bath of claim 1, the polyamine including a repeating unit having the following general formula:

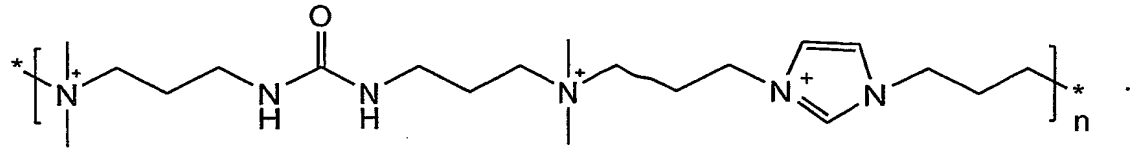


where v is an integer greater than 1.

8. The zinc or zinc alloy electroplating bath of claim 1, the polyamine including a repeating unit having the following general formula:

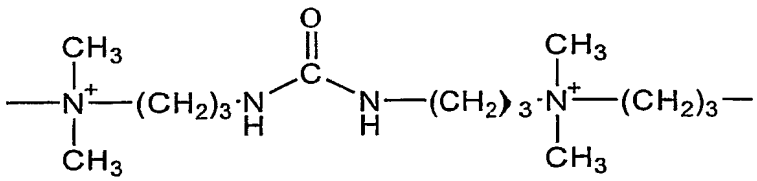


9. The zinc or zinc alloy electroplating bath of claim 1, the polyamine including a repeating unit having the following general formula:

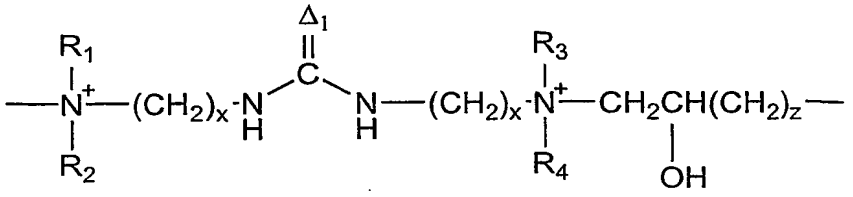


10. A zinc or zinc alloy electroplating bath comprising:

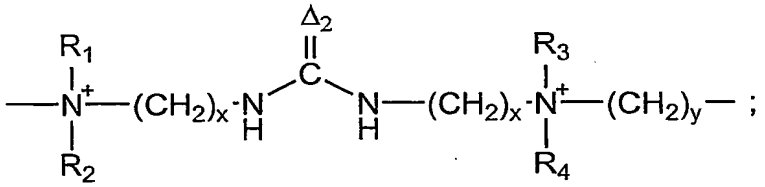
zinc ions and a brightening agent, the brightening agent comprising at least one polyamine or a mixture of polyamines, the at least one polyamine or mixture of polyamines including a first repeating unit that has the general formula:



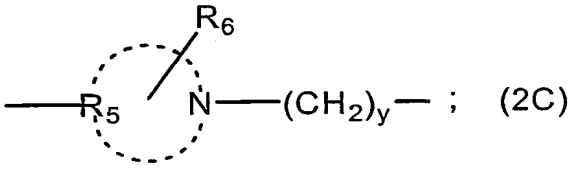
and a second repeating unit selected from the group consisting of:



(2A)



(2B)

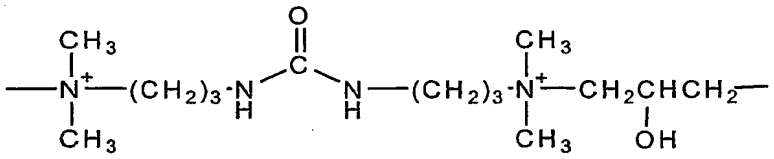


(2C)

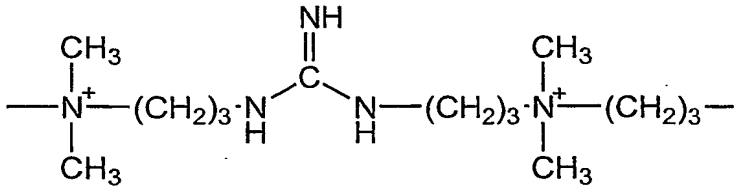
and combinations thereof;

where Δ_1 is O, N, or S; Δ_2 is O, N, or S, and $\Delta_2 \neq \Delta_1$; x is an integer from 2 to 6; y is an integer from 1 to 6; z is an integer from 1 to 6; R_1, R_2, R_3, and R_4, which is the same or different, is methyl, ethyl, isopropyl, n-propyl, hydroxyethyl, or $-CH_2CH_2(OCH_2CH_2)_mOH$; m is a number between 0-6; R_5 represents a group of atoms necessary to complete a heterocyclic compound having a five or six membered ring containing at least two nitrogen atoms, and R_6 is nothing or an alkyl group.

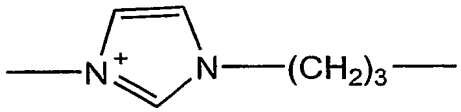
11. The zinc or zinc alloy electroplating bath of claim 10, the second repeating unit comprising:



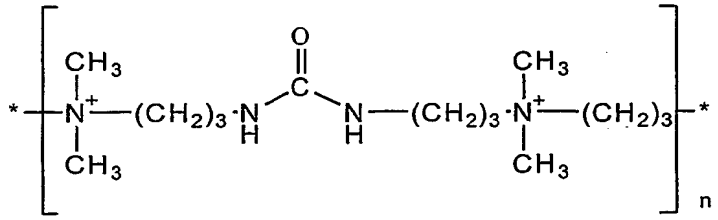
12. The zinc or zinc alloy electroplating bath of claim 10, the second repeating unit comprising:



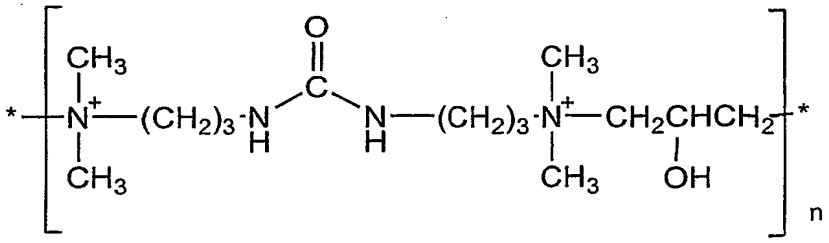
13. The zinc or zinc alloy electroplating bath of claim 10, the second repeating unit comprising:



14. The zinc or zinc alloy plating bath of claim 10, the brightening agent comprising a mixture of polyamines, the mixture of polyamines including a first polyamine of the general formula:

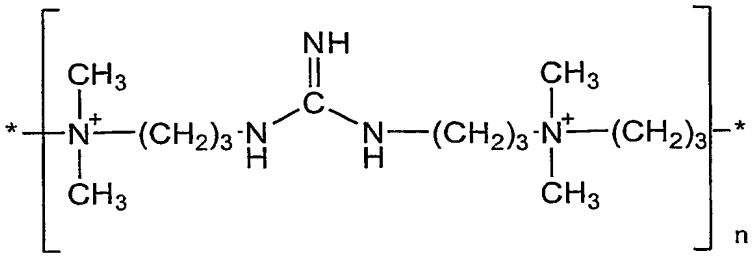


and a second polyamine selected from the group consisting of:



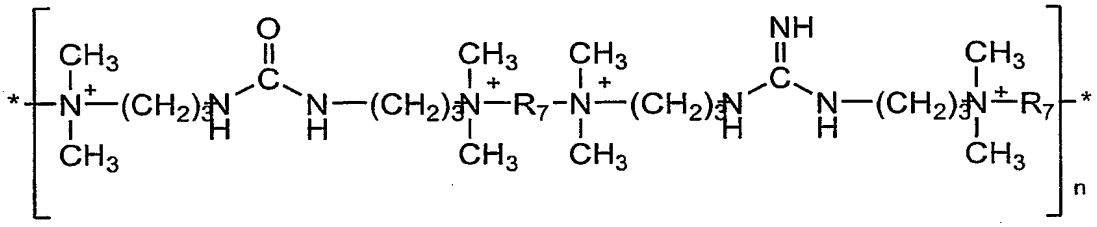
;

and



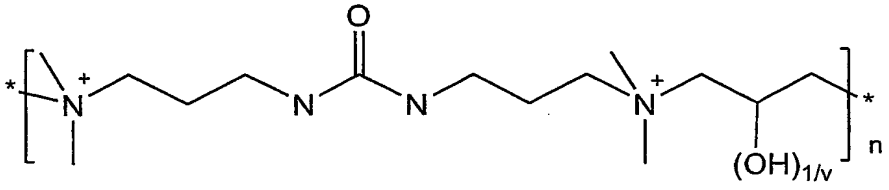
15. The zinc or zinc alloy electroplating bath of claim 10, the first repeating unit and the second repeating unit being in the same polymer chain.

16. The zinc or zinc alloy electroplating bath of claim 10, the polyamine including a repeating unit having the following general formula:



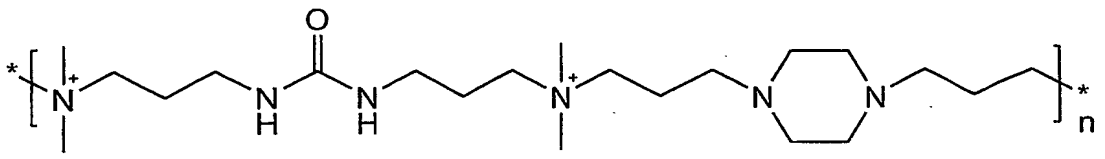
where R_7 is an alkylene group.

17. The zinc or zinc alloy electroplating bath of claim 10, the polyamine including a repeating unit having the following general formula:

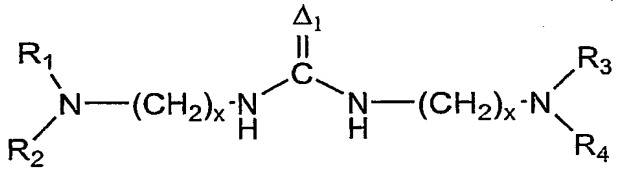


where v is an integer greater than 1.

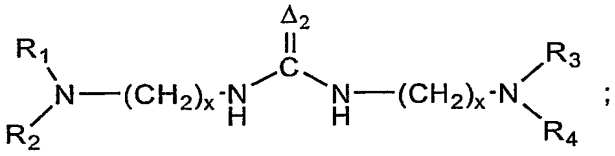
18. The zinc or zinc alloy electroplating bath of claim 10, the polyamine including a repeating unit having the following general formula:



19. A brightening agent for an alkaline zinc or zinc alloy electroplating bath, the brightening agent comprising a copolymer of a first monomer having the following formula:



and at least two of the following compounds selected from the group consisting of:



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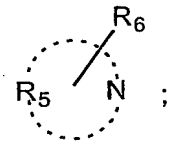
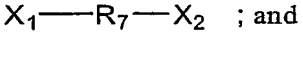
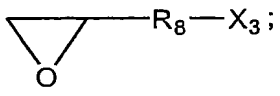


;



; and



;

where Δ_1 is O, N, or S; Δ_2 is O, N, or S, and $\Delta_2 \neq \Delta_1$; x is an integer from 2 to 6; R_1, R_2, R_3, and R_4, which is the same or different, is methyl, ethyl, isopropyl, n-propyl, hydroxyethyl, or $-CH_2CH_2(OCH_2CH_2)_mOH$; m is a number between 0-6; R_5 represents a group of atoms necessary to complete a heterocyclic compound having a five or six membered ring containing at least two nitrogen atoms; R_6 is nothing or an alkyl group; R_7 and R_8, which may be the same or different, is an alkylene group; and X_1, X_2, and X_3, which is the same or different, is a halogen.